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ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-9889

EXAMINER	
NGUYEN, TANH Q	
ART UNIT	**PAPER NUMBER**
2182	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/663,656	FUKUZAWA ET AL.
	Examiner	Art Unit
	Tanh Q. Nguyen	2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09/17/03, 10/24/03, 01/28/04, 04/02/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/052,985.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/17/03, 04/02/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. The current status of nonprovisional parent application 10/326,978 should be included.

Specification

2. The abstract of the disclosure is objected to because it is not consistent with the teachings of the invention - I/O subsystem A for open system, and I/O subsystem B for a mainframe are not consistently used in the Abstract. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 1-5 and 6-12 are objected to because of the following informalities:

Claim 1 recites "an I/O request" on line 5, and "said I/O request" on lines 7-8. It appears that there is no support in the specification for the write request on line 5 to be the same write request as the write request on lines 7-8; instead, the specification discloses two I/O requests - an I/O request issued from the host, and an I/O request sent by the disk controller.

Claim 6 recites "a write request" on line 6, and "the write request" on line 12. It appears that there is no support in the specification for the write request on line 6 to be the same write request as the write request on line 12; instead, the specification discloses two write requests - a write request issued from the host, and a write request

sent by the disk controller.

Appropriate correction is required.

4. Claim 4 is objected to because of the following informalities: "an storage area" in line 6 should be corrected to "a storage area".

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 11-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 11, there is no support in the specification for the second disk controller to have an interface for coupling to the host computer, and the first disk controller being coupled to the second disk controller via the same type of interface as the interface for coupling to the host computer.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by **Beal et al. (USP 5,155,845)**.

9. As per claim 1, **Beal** teaches a storage system [105, 112, 109, FIG. 4] comprising:

a disk controller [105, 112, FIG. 4] coupled to a host computer [101, FIG. 4];

a plurality of disks [109, FIG. 4] coupled to said disk controller;

wherein said storage system is coupled to another storage system [107, 113, 111, FIG. 4], and

wherein said disk controller receives an I/O request from said host computer (col. 30, lines 60-61), selects a storage system [107, 113, 111, FIG. 4], in which a storage area accessed by said host computer exists (remote volume 1 at remote disk drives 111 of DSC 107: col. 25, lines 38-42), based on a disk address included in said I/O request (phantom volume of DSC 105: col. 30, lines 48-51), and sends said I/O request to said another storage system if said storage area exists in said another storage system (col. 30, line 20-col. 31, line 37).

10. As per claims 2-5, Beal teaches the I/O request being a write request to write data into said storage area (col. 30, lines 60-61) - claim 2;

the disk controller comprising a memory [612, FIG. 7], wherein corresponding

information between a disk address and a storage system, in which a storage area designated by said disk address exists, is stored in said memory (col. 25, lines 43-63), and wherein the disk controller selects a storage system, in which said storage area accessed by said host computer exists, using said corresponding information and said disk address included in said I/O request (col. 30, line 20-col. 31, line 37) - claim 3;

the I/O request further including a data address (col. 22, line 43-col. 23, line 15), wherein said disk address (phantom volume of DSC 105: col. 30, lines 48-51) designates a disk recognized by said host computer (remote volume 1 at remote disk drives 111 of DSC 107: col. 25, lines 38-42) and said data address designates a storage area in a disk designated by said disk address (col. 27, lines 11-47), and wherein said disk controller selects a storage system, in which a storage area accessed by said host computer exists, not using said data address (data address was not used in selecting the storage system, only disk address was used in selecting the storage system) - claim 4;

the storage system being a CKD DASD system (col. 2, lines 50-51), hence the data address being a record ID (col. 27, lines 11-47) - claim 5.

11. As per claim 6, Beal teaches a storage system [105, 112, 109, FIG. 4] comprising:

a first disk controller [105, 112, FIG. 4] coupled to a host computer [101, FIG. 4]; and

at least one first disk [109, FIG. 4] coupled to said first disk controller;

wherein said storage system is coupled to another storage system [107, 113,

111, FIG. 4], which comprises a second disk controller [107, 113, FIG. 4] and at least one second disk [111, FIG. 4],

wherein said first disk controller receives a write request issued from said host computer (col. 30, lines 60-61), selects a storage system [107, 113, 111, FIG. 4] including a target disk (remote volume 1 at remote disk drives 111 of DSC 107: col. 25, lines 38-42) corresponding to first disk identification information included in the write request (phantom volume of DSC 105: col. 30, lines 48-51), obtains, if a selected storage system is said another storage system, identification information designating said another storage system [107, 113, 111, FIG. 4] and second disk identification information designating one of said at least one second disk (remote volume 1 at remote disk drives 111 of DSC 107: col. 25, lines 38-42) based on said first disk identification information (phantom volume of DSC 105: col. 30, lines 48-51), and sends the write request to said another storage system according to said identification information designating said another storage system and said second disk identification information (col. 30, line 20-col. 31, line 37).

12. As per claims 7-11, Beal teaches the first disk controller storing correlation information among first disk identification information (phantom volume of DSC 105: col. 30, lines 48-51), identification information designating a storage system [107, 113, 111, FIG. 4], and second disk identification information (remote volume 1 at remote disk drives 111 of DSC 107: col. 25, lines 38-42), and obtains said identification information designating the selected storage system and said second disk identification information based on said correlation information (col. 25, lines 43-63) - claim 7;

the correlation information being set in said first disk controller by a service processor [101, FIG. 12] coupled to said controller - claim 8;

the second disk identification information being disk identification information assigned to said another storage system (remote volume 1 at remote disk drives 111 of DSC 107: col. 28, lines 23-) - claim 9;

the first disk controller writing data to one of said at least one first disk, if the disk designated by said first disk identification information is in said storage system (col. 22, lines 43-53) - claim 10;

the second disk controller [107, 113, FIG. 4] having an interface [107, FIG. 4] for coupling to the host computer [101, FIG. 4], and the first disk controller [105, 112, FIG. 4] is coupled to the second disk controller via the same type of interface [105, FIG. 4] as the interface for coupling to the host computer - claim 11.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Beal et al.**.

Beal teaches the claimed invention in a mainframe environment, therefore does not teach for the first disk controller and the second disk controller being coupled in accordance with SCSI. It would have been obvious, however, to one of ordinary skill in the art at the time the invention was made for the first disk controller and the second disk controller to be coupled in accordance with SCSI to allow Beal's invention to be practiced in a SCSI environment.

Double Patenting

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 6-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of **U.S. Patent No. 6,721,841 (USP '841)**.

USP '841 teaches a storage system (line 2, claim 1) comprising:

a first disk controller coupled to a host computer (lines 2-4, claim 1); and

at least one first disk coupled to said first disk controller (lines 3-4, claim 1);

wherein said storage system is coupled to another storage system, which comprises a second disk controller and at least one second disk (lines 6-9, claim 1),

wherein said first disk controller receives a write request issued from said host computer, selects a storage system including a target disk corresponding to first disk identification information included in the write request, obtains, if a selected storage system is said another storage system, identification information designating said another storage system and second disk identification information designating one of said at least one second disk based on said first disk identification information, and sends the write request to said another storage system according to said identification information designating said another storage system and said second disk identification information (lines 10-23, claim 1).

Claims 1-4 of **USP '841** contain every element of claims 6-11 of the instant application, and as such anticipate claims 6-11 of the instant application.

"A later patent claim is not patentably distinct from an earlier patent claim if the

later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). " ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

18. Claims 1-3, 6-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4-5 of **U.S. Patent No. 6,529,976 (USP '976)**.

USP '976 teaches a storage system (line 1, claim 4) comprising:

a first disk controller coupled to a host computer (lines 1-4, claim 4); and

at least one first disk coupled to said first disk controller (lines 4-5, claim 5);

wherein said storage system is coupled to another storage system, which comprises a second disk controller (lines 5-7, claim 4) and at least one second disk (lines 5-6, claim 5),

wherein said first disk controller receives a write request issued from said host computer (lines 9-11, claim 4), selects a storage system including a target disk (destination disk: line 3, claim 5) corresponding to first disk identification information included in the write request (lines 2-8, claim 5), obtains, if a selected storage system is

said another storage system, identification information designating said another storage system (another disk controller...upon said destination disk not being connected to said disk controller: lines 5-8, claim 5) and second disk identification information (which disk of another disk controller: lines 5-8, claim 5) designating one of said at least one second disk based on said first disk identification information (lines 2-8, claim 5), and sends the write request to said another storage system according to said identification information designating said another storage system and said second disk identification information (col. 14-17, claim 4).

Claims 4-5 of **USP '976** contain every element of claims 1-3, 6-11 of the instant application, and as such anticipate claims 1-3, 6-11 of the instant application. Claims 1-3, 6-11 of the instant application are therefore not patentably distinct from claims 4-5 of **USP'976**.

19. Claims 4-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4-5 of **U.S. Patent No. 6,529,976 (USP '976)** in view of **Beal et al.**.

Beal teaches a data address for designating a storage area in a disk designated by a disk address, the data address being a record ID (see 102 rejections to claim 4-5 above). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's teachings of the data address into USP' 976 for the purpose of designating a storage area in a disk designated by a disk address of USP' 976.

20. Claims 1-3, 6-11 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of **U.S. Patent No. 6,098129 (USP '129)**.

USP '129 teaches a storage system (lines 3-5) comprising:

a first disk controller coupled to a host computer (lines 3-5); and

at least one first disk coupled to said first disk controller (lines 3-5);

wherein said storage system is coupled to another storage system (lines 10-11), which comprises a second disk controller and at least one second disk (lines 7-9),

wherein said controller receives a write request from said host computer (lines 20-21), selects a storage system (lines 24-28) including a target disk designated by first disk identification information included in the write request (lines 25-26), obtains identification information designating a selected storage system (lines 14-16) and second disk identification information designating the target disk (lines 16-19) based on said first disk identification information, and sends a write request to the selected storage system according to the identification information designating the selected storage system and the second disk identification information (lines 30-32).

Claim 1 of **USP '129** contains every element of claims 1-3, 6-11 of the instant application, and as such anticipate claims 1-3, 6-11 of the instant application. Claims 1-3, 6-11 of the instant application are therefore not patentably distinct from claim 1 of **USP'129**.

21. Claims 4-5 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of **U.S. Patent No. 6,098129 (USP**

'129) in view of **Beal et al.**.

Beal teaches a data address for designating a storage area in a disk designated by a disk address, the data address being a record ID (see 102 rejections to claim 4-5 above). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Beal's teachings of the data address into USP' 129 for the purpose of designating a storage area in a disk designated by a disk address of USP' 129.

22. Claims 6-12 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 11-16 of copending **Application No. 10/663,662 (S/N 662)**.

S/N 662 teaches a storage system (controller: line 1, claim 11 - as the disclosure characterizes the controller as a disk controller of a storage system) comprising:

a first disk controller coupled to a host computer (line 6, claim 11); and

at least one first disk coupled to said first disk controller (as the disclosure characterizes a controller as a disk controller with at least a disk coupled to the disk controller);

wherein said storage system is coupled to another storage system (first storage system: line 1, claim 11), which comprises a second disk controller and at least one second disk (lines 3-4, claim 11),

wherein said first disk controller receives a write request issued from said host computer, selects a storage system including a target disk corresponding to first disk identification information included in the write request, obtains, if a selected storage

system is said another storage system, identification information designating said another storage system and second disk identification information designating one of said at least one second disk based on said first disk identification information, and sends the write request to said another storage system according to said identification information designating said another storage system and said second disk identification information (lines 6-12, claim 11).

Claims 11-16 of **S/N 662** contain every element of claims 6-12 of the instant application, and as such anticipate claims 6-12 of the instant application. Claims 6-12 of the instant application are therefore not patentably distinct from claims 11-16 of **S/N 662**.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Quang Nguyen whose telephone number is (703) 305-0138, and whose e-mail address is tanh.nguyen36@uspto.gov. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin, can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 for After Final, Official, and Customer Services, or (703) 746-5672 for Draft to the Examiner (please label "PROPOSED" or "DRAFT").

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TQN
June 7, 2004

FRITZ FLEMING
PRIMARY EXAMINER
GROUP 2100